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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,035	12/28/2001	Young Ho Bae	2658-0280P	3483
2292 7590 11/16/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER KACKAR, RAM N	
			ART UNIT 1792	PAPER NUMBER
			NOTIFICATION DATE 11/16/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

<b>Office Action Summary</b>	Application No. 10/029,035	Applicant(s) BAE, YOUNG HO	
	Examiner Ram N. Kackar	Art Unit 1792	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 October 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-8,10-12,15 and 16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10-12,15 and 16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/1/2007</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Drawings*

1. The drawing corrections received on 10/19/2004, 5/11/2005, 5/3/2006, 12/8/2006 and 10/12/2007 are not acceptable. The drawing changes do not remove the deficiencies of the original drawings dated 12/28/2001 submitted with the application.

The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

The drawing deficiencies at minimum include drawings for load and unload of the substrate indicating clearly, the elements claimed, so as to enable one to locate them on the drawings. These should include elements whose distances and sizes are claimed. The drawings should clearly show sliding portion, stopping pins and groove in a profile in order to understand their relative locations. It is suggested that the drawings should depict features of the invention by numerals with description in the specification.

It is further required that no new matter is added.

The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

The latest drawing changes dated 10/12/2007 has two sheets and Fig1, Fig2, Fig 5 and Fig 6. Fig 1 and Fig 2 are same as the original drawings dated 10/19/2004 except the label has

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been changed from CONVENTIONAL ART to RELATED ART. Fig 5 has been modified by removing numeral 42 and Fig 6 has been given a label 30. Since these drawing modifications do not address the issue of deficiencies being pointed out during the prosecution they are not acceptable.

### *Specification*

2. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms that are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. It is further required that no new matter is added. Piece meal changes to the specification submitted on 3/1/2004, 10/19/2004, 5/11/2005, 5/3/2006, 12/8/2006 and 10/12/2007 have not made it more clear concise and exact as per the requirement.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1, 3-8, 10-12 and 15-16 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

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In this instance the new limitation "wherein the robot arm supports a portion of the glass substrate with a non-supported edge portion freely hanging over the robot arm such that as the robot arm moves in a forward direction to transfer the glass substrate onto the susceptor, the non-supported edge portion of the glass substrate slides on the sliding portion of the susceptor and is stopped by at least one stopping pin located at the stopping position" is a new matter.

Further these claim(s) contain subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In this instance sliding mechanism for claimed load and unload of the substrate is not described in drawings and specification. Included in missing items is the description and drawing to indicate complete sliding portion, its distance from an edge of the groove and position and orientation of the robot arm with and without substrate during unload, load and sliding:

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 3-8, 10-12 and 15-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 the limitation "wherein the robot arm supports a portion of the glass substrate with a non-supported edge portion freely hanging over the robot arm such that as the robot arm moves in a forward direction to transfer the glass substrate onto the susceptor, the non-supported

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edge portion of the glass substrate slides on the sliding portion of the susceptor and is stopped by at least one stopping pin located at the stopping position” is not understood. The relative locations of the stopping pins, groove and sliding portion is not clear. For example in Fig 2 the stopping pins 28 are shown under the substrate while in Fig 3 the pins are along side the substrate. Similarly the sliding portion of the susceptor is not identified anywhere.

In claim 3 length of the sliding portion being 3 or 10 mm is not understood, since the delimiting points of this distance are not indicated anywhere.

In claim 12 the second planer portion being horizontally contiguous with the first planer portion is not understood.

In claim 15 the robot arm is recited to be “configured to incline the glass substrate at substantially 85 degrees”. However, there is no disclosure that the robot arm is configured in any way to cause this to happen. As best understood, the substrate bends due to its own weight. Further, since the angle of bend depends upon the weight of the substrate, it may not always be 85 degrees.

It is noted that the substrate, being a content of the claimed apparatus does not impart patentability to the apparatus.

Expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 1, 3-8, 10-12, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants admitted prior art (AAPA) in view of Tepman et al (US 5589224) or alternatively in view of DuBois et al (US 5855687).**

Applicants admitted prior art (AAPA) as disclosed in Figs 1 to Fig 4 A, B, C and D and the specification paragraphs 2-23 discloses all limitations of these claims except the groove to collect material disposed on the susceptor.

Tepman et al disclose a vacuum deposition apparatus for PVD, CVD, sputtering, ion implanters etc (Col 1 lines 10-19), lift pins (Fig 1-30), robot arm (Fig 4 and Col 2 lines 13-16), stopping pin (40 being used to align the substrate) and groove around susceptor to collect deposition so that build up on the surface of the susceptor may not cause problem by sticking to the substrate (Fig 3-38 and Col 4 lines 54-63).

Similarly DuBois et al disclose a vacuum deposition apparatus for CVD with heatable susceptor (Col 3 line 22-42 and lines 38-40), lift pins and robot arm (Col 5 lines 49-51), groove around susceptor to collect deposition so that build up may not cause problem by sticking to the substrate (Col 4 lines 43-48).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have grooves on the susceptor in order to avoid problems of substrate sticking.

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Regarding the limitation “wherein the robot arm supports a portion of the glass substrate with a non-supported edge portion freely hanging over the robot arm such that as the robot arm moves in a forward direction to transfer the glass substrate onto the susceptor, the non-supported edge portion of the glass substrate slides on the sliding portion of the susceptor and is stopped by at least one stopping pin located at the stopping position” in as far as this points to any structural feature all three AAPA, Tepman et al and DuBois et al show a robot arm of cantilevered design and will behave in the same way as in claimed operation. Therefore it does not point to any structural feature not disclosed in AAPA, Tepman et al and DuBois et al.

Regarding the angle of substrate bending at least the bending and stopping at the stopper are disclosed in the prior art even though these are functional limitations and no patentable weight can be given to them.

Regarding the shape of the grooves: It was held in *re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) that the shape was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular shape was significant. (Also see MPEP 2144.04(d)).

Similarly, *regarding change in size/proportion*: It was held in *re Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984) that where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.



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**9. Claims 4 and 10 are also rejected under 35 U.S.C. 103(a) as being unpatentable over applicants admitted prior art (AAPA) in view of Tepman et al (US 5589224) or alternatively in view of DuBois et al (US 5855687) as applied to claims (1, 3, 5-8, 11-12, 15 and 16) and further in view of Rempei Nakata (US 5119761).**

Tepman et al and DuBois et al as discussed above do not disclose the susceptor to be made of Quartz.

Quartz susceptors are common for thermal processing for its thermal insulation properties.

Rempei Nakata discloses a quartz susceptor (Fig 12-106 and Col 1 lines 44-49).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have a susceptor of quartz for its excellent thermal properties of insulation.

### ***Response to Amendment***

Applicant's arguments filed 10/12/2007 have been fully considered but they are not persuasive.

Applicant's amendment to drawings and an attempt to mischaracterize conventional art drawings Fig 1 to Fig 4D as something not prior art is not acceptable.

Regarding applicants argument that the groove in DuBois et al is used as a thermal choke, it is noted that it is also used to collect deposition to prevent sticking at the edge of the substrate.

Applicant further argues that the groove is not located at a stopping pin. Firstly, it is not clear from the claimed invention where the groove is located with respect to the stopping pin of the AAPA, secondly both Tepman et al and DuBois et al disclose grooves at the edge of the

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substrate. So it is obvious that in order to apply the teaching of Tepman et al or DuBois et al to AAPA the groove will be close to stopping pin. Further Tepman shows the stopping pin in the groove.

### ***Conclusion***

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ram Kackar  
Primary Examiner AU 1763